

**Before the
Federal Communications Commission
Washington, DC 20554**

In the Matter of the Petition of)	
)	
The United Power Line Council)	WC Docket No. 06-10
)	
For a Declaratory Ruling Regarding the)	
Classification of Broadband Over Power)	
Line Internet Access Service As)	
An Information Service)	

**COMMENTS OF PANASONIC CORPORATION OF NORTH AMERICA
IN SUPPORT OF THE UNITED POWER LINE COUNCIL PETITION FOR
DECLARATORY RULING**

I. Introduction

Panasonic Corporation of North America (“Panasonic”) respectfully comments in support of the United Power Line Council’s Petition for Declaratory Ruling in the above-captioned proceeding.¹ Panasonic recommends, however, that the Federal Communications Commission (“Commission”) require electric utilities that provide broadband over power line Internet access service (“Access BPL”) to use a coexistence protocol as a condition for finding that it is an “information service.” Such a requirement is necessary in order to eliminate the impact of interference to In-Home Power Line Communication (“In-Home PLC”) networks that must share consumers’ residential electric power wiring with the desired (or undesired) ingress of Access BPL service.

Panasonic believes that the advent of these new Access BPL service providers will benefit consumers by increasing competition and expanding broadband access to homeowners in underserved areas. Panasonic is concerned, however, that if the interface between the new

¹ United Power Line Council Petition for Declaratory Ruling (filed Dec. 23, 2005) (“*UPLC Petition*”); see FCC Public Notice DA 06-49 (Jan. 11, 2006).

electric utility-provided Access BPL distribution systems and the consumer-owned In-Home PLC network within individual homes or other locations is not carefully managed, interference between these two (or more) networks will cause disruptions in both services, confuse consumers, and slow the development of both market segments. Panasonic had previously indicated to the Commission a concern that Access BPL service could disrupt or impair a consumer's home networking system that utilizes the home's electrical wiring. We now believe that establishing a coexistence protocol is a technically achievable and economically feasible approach that will benefit both consumers and the deployment of Access BPL services.²

Panasonic is the principal North American subsidiary of Matsushita Electric Industrial Co. Ltd., a world leader in electronics and wireless telecommunications technology, best known for its Panasonic brand products. Panasonic and its affiliated companies manufacture and distribute a wide range of consumer electronics, information technology, and other electronic products.

Panasonic has announced the introduction of home networking devices that will be affected by the rules under consideration in this proceeding. For example, Panasonic has developed home networking technology which uses home wiring to transmit multiple high definition television signals simultaneously throughout a home, permitting broadband connections wherever there is an A/C electric outlet. Panasonic first announced, demonstrated and exhibited this new technology at the Consumer Electronics Show in Las Vegas, Nevada, in January, 2004. In January 2006, Panasonic announced the availability of its new retail product, the "BL-PA100 HD-PLC Ethernet Adaptor" - a revolutionary product that will enable anyone to

². See Panasonic Reply Comments in *Carrier Current Systems, including Broadband over Power Line Systems*, ET Docket No. 03-104; *Amendment of Part 15 regarding new requirements and measurement guidelines for Access Broadband over Power Line Systems*, ET Docket No. 04-37 (submitted June 22, 2004)

establish a powerful, robust, encryption-protected, high bandwidth In-Home PLC network. With a data speed of 190 Mbps, this product makes it is possible to connect and enjoy exceptional quality high-definition video content (“HDTV”), music playback, real-time Internet gaming, VoIP telephone service, video home monitoring as well as connection of computers, printers and other devices to a unified network.

II. BPL IS UNLIKE OTHER BROADBAND SERVICES BECAUSE OF THE POTENTIAL FOR INTERFERENCE TO CONSUMER EQUIPMENT IN THE HOME

Panasonic supports the Commission’s efforts to provide a regulatory environment that will promote the growth of Access BPL. Because these broadband communication systems utilize existing electric utility wires that connect most American homes to the power grid, Access BPL promises to provide many homes with wired broadband service. Access BPL will provide new competition to existing telephone and cable-based service providers, and may even be able to serve homes in geographic areas that are not now served by other broadband technologies. Introducing new competition among broadband distributors will drive greater broadband deployment and encourage the delivery of new and innovative broadband services.

The deployment of Access BPL service on the electric power grid, however, should not impede the ability of consumers, in their own homes, to employ one or more In-Home PLC networks. Access BPL systems may overlap the spectrum - especially between 2 and 30 MHz - that generally is used by established and new In-Home PLC systems. While Panasonic fully support both types of powerline networking systems, we believe there is a high potential for conflict in spectrum usage between Access BPL and In-Home PLC networks.

Therefore, Panasonic urges the Commission to condition any declaratory ruling that finds Access BPL is an “information service” on the adoption of reasonable technical coexistence

standards that will enable home electric wiring to be an arena of cooperation and not conflict. Adopting such a requirement would prevent the potential for destructive interference in the operations of incompatible systems. Without coexistence standards, for example, interference within the home wiring could prevent customers of competitive wireline providers, such as cable and DSL service providers, from utilizing home electric wiring for distributing their broadband services, even if the consumer does not subscribe to an Access BPL service.

As the UPLC petition recognizes, “BPL is a shared medium.”³ Furthermore, the UPLC petition explicitly notes that utility providers plan to utilize Access BPL for “two-way real-time connectivity, enabling advanced metering applications and remote management of the distribution grid” that would presumably entail the intentional introduction of Access BPL service in the low-voltage wiring and its connection to the home power meter.⁴ Since several homes are usually connected to a single transformer that feeds multiple low-voltage lines, *all of these homes will have the Access BPL signal introduced into their internal wiring and will experience some degree of degradation if the owners try to use an In-Home PLC network.*

When the Access BPL signal is introduced into the home’s electric power lines, an appreciable portion of the spectrum space in that wiring is consumed by that Access BPL signal – often the very same spectrum space that In-Home systems need themselves to function. Thus, the two systems would mutually interfere with each other in the same frequency bands. This interference may disable the Access BPL system or reduce its performance (e.g. speed, robustness, capacity). In turn, the In-Home BPL system, if it monitors and adjusts its operation to bypass interference, will simply slow down; or it may simply stop working altogether as well.

³ See UPLC Petition; at p. 5

⁴ Id. at p. 7

Where the Access BPL signal uses the band from 2-15 MHz, the In-Home system will lose much of its capability to distribute high data rate signals such as HDTV.

The need for the Commission to assert its authority to prevent interference in the home is driven by the operational characteristics of Access BPL service. First, Access BPL is ‘always on’ and its operation is not controlled by the consumer. Unlike wireless home networks, where consumers themselves determine their selection of technology, frequency bands and devices to employ within their homes, it is the Access BPL provider who decides to turn on the system and inject the Access BPL signal into the low-voltage wiring feeding the home - with or without the permission of the home owner.

Second, a consumer who subscribes to cable modem or DSL service is unable to filter out the Access BPL without the purchase of additional equipment. This would automatically degrade the value of such competing broadband services and provide a major disincentive to consumers to acquire new In-Home PLC technology to connect broadband products using ubiquitous home electric wiring.

Finally, Access BPL providers have no inherent incentive to share the home wiring of consumers with their competitors in the absence of government regulation that requires them to play fair. Indeed, the homeowners are the owners of inside electric wiring purchased with a home; and now that this wiring also can carry more than simply electric power, consumers must be the ones to determine which, and how many, Access BPL and In-Home PLC systems they choose to employ.

For these reasons, and the greater importance to the public interest in promoting broadband access and fair competition in the broadband market, Panasonic believes the

Commission should ensure that Access BPL providers use a coexistence protocol as a condition for finding that the Access BPL is an information service.

III. NON-DISCRIMINATORY SOLUTIONS EXIST TO PROTECT CONSUMERS FROM INTERFERENCE FROM ACCESS BPL SERVICE

The Consumer Electronics Powerline Communications Alliance⁵ (“CEPCA”) is a not-for-profit industry organization whose mission is to ensure co-existence between various high-speed, powerline communication (“PLC”) systems for use in the home. CEPCA’s membership cover both In-Home and Access BPL technologies.⁶ CEPCA has formed collaborative liaison relationships with other powerline communication groups, and developed specifications to enable technical co-existence among the various Access BPL and In-Home PLC technologies. The goal of CEPCA is to define a coexistence specification that enables various devices and systems to share communication resources (i.e. frequency and time) when installed in a network with common electrical wiring.

To avoid interference, CEPCA’s coexistence solution allows the use of three elements: (1) Frequency Division Modulation (FDM); (2) Time Division Modulation (TDM); and (3) a Commonly-Distributed Coordination Function (CDCF). The use of FDM gives each system exclusive use of a frequency band, making it possible for each system to guarantee its quality of service (“QoS”) precisely. The use of TDM would allow modems to share the total frequency band by using it at different times, thus supporting both QoS and rapid transfer rates. The CDCF signal is a simple coexistence protocol that utilizes a data channel to coordinate use of the

⁵ See: <http://www.cepca.org>

⁶ Members currently include Analog Devices, Delta Electronics, Hitachi, Ltd., Matsushita Electric Industrial Co., Ltd. (Panasonic), Mitsubishi Electric, Mitsubishi Materials Corporation, Pioneer Corporation, Sanyo Electric Co., Ltd., Sony Corporation, ST&T Corporation, Toshiba Corporation, and Yamaha Corporation.

spectrum between the Access BPL service and one or more In-Home PLC network(s). Each node (e.g. an adaptor or a device plugged into the wiring) sends a CDCF signal to notify other nodes in the network (including the Access BPL system) of its presence and/or to request use of some frequency channels and time slots. In the case where there is a need for coexistence between Access BPL system and In-Home PLC systems, the CEPCA specification would allow an Access BPL system priority to use half of the available time and frequency resources by the FDM or TDM coexistence mechanisms. An In-Home system would use the remaining available resources or, in the case where multiple In-Home PLC systems are present, they would share the remaining resources.

Panasonic believes the CEPCA specification provides a fair and balanced sharing of resources between an Access BPL system and any In-home PLC system(s) permitting both systems to coexist, by allowing 50% of the channel resources to be available for the Access system and 50% to be shared among any In-home PLC systems. We believe such fair and balanced sharing of resources is central to the public interest in supporting broadband service competition and consumer choice, while providing the incentive for technological innovation in home networks. For example, it would be possible for a wide range of products to be designed with “built-in” powerline networking adaptors so that they would merely have to be plugged into a power outlet to be connected to the home network. But without the certainty that interference from Access BPL services could be avoided, there is little economic incentive for equipment manufacturers to provide such capabilities.

III. CONCLUSION

The UPLC petition notes, the “timing of the declaratory ruling is important. BPL is already rolling out commercially...”⁷ Similarly, it is important that the Commission act expeditiously to ensure that Access BPL deployments do not stifle consumers’ options in the market for In-Home PLC networks or unnecessarily and unfairly degrade their value to consumers. Such action would be consistent with the Commission’s goals to increase the availability of broadband Internet access to all Americans.

For all of the above reasons, therefore, Panasonic urges the Commission to grant the UPLC Petition for Declaratory Ruling and affirmatively determine that Internet services provided over power line technologies are “information services” under the Communications Act, provided that Access BPL technologies employ a reasonable coexistence protocol in order to avoid interference with In-Home PLC networks.

Respectfully submitted,

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⁷ See UPLC Petition; at p. 9